

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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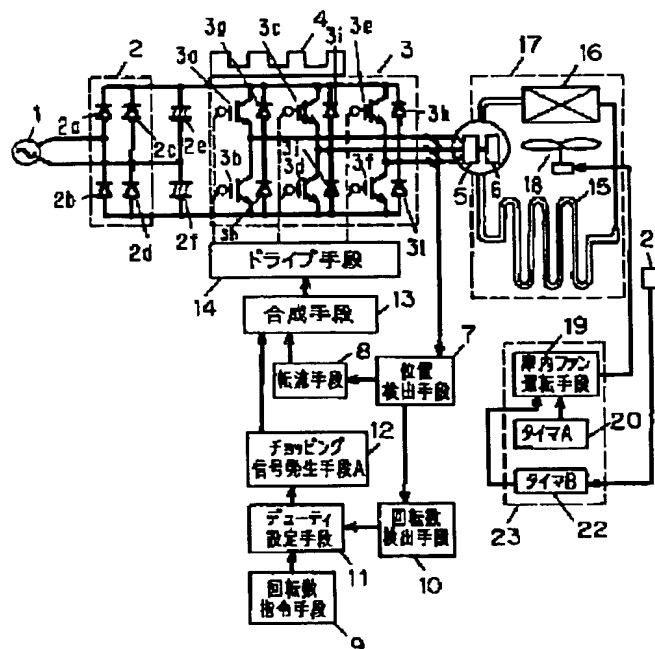
APPLICATION DATE : 07-07-95  
APPLICATION NUMBER : 07171823

APPLICANT : MATSUSHITA REFRIG CO LTD;

INVENTOR : KURIMOTO KAZUNORI;

INT.CL. : F25D 11/00 F25D 17/06

TITLE : CONTROL DEVICE FOR REFRIGERATOR



**ABSTRACT :** PROBLEM TO BE SOLVED: To restrict a peak value in an inverter circuit temperature in a control method for a control device for controlling the number of rotations of a compressor under an operation of the inverter by a method wherein when a surrounding air temperature of a refrigerator is high, its power supply is turned on, an operation of a refrigerator fan is stopped for a specified period of time after a specified period of time elapses.

**SOLUTION:** When a surrounding air temperature of a refrigerator sensed by a surrounding air temperature sensor 21 is high, a timer A20 turns on a power supply, an operation of a refrigerator fan is stopped for a specified period of time after a specified period of time elapses, then a timer B22 further stops an operation of the refrigerator fan for a specified period of time after specified period of time elapses, thereby a current of a compressor is controlled in such a way that a peak value of an inverter circuit temperature is restored.

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AP - JP19950171823 19950707

CPY - MATJ

DC - Q75 X27

FS - GMPI;EPI

IC - F25D11/00 ; F25D17/06

MC - X27-F03

PA - (MATJ ) MATSUSHITA REIKI KK

PN - JP9026246 A 19970128 DW199714 F25D11/00 013pp

PR - JP19950171823 19950707

XIC - F25D-011/00 ; F25D-017/06

XP - N1997-124459

AB - J09026246 The system consists of an inverter circuit (3) which carries out the bridge connection of two or more semiconductor switches and diodes. A heat sink (4) is provided to cool the inverter circuit. A DC motor (5) which actuates a compressor (6) is operated by the integrated circuit. A condenser (15) and a cooler (16) are connected in the refrigeration circuit with the compressor. A fan (18) circulates the air through the cooler for cooling the cold storage chamber of the refrigerator. A first timer (20) is provided to output a constant time fan stop signal to a fan driver stage (19) in the power supply circuit for the fan. The fan operation is stopped for a constant time after a predetermined time from the power switch on. A position detector (7) is provided to detect the position of the rotor in the DC motor. A commutator (8) is provided to output the commutation pulse which decides the output of the position detector corresponding to a group of operations by the semiconductor switches of the inverter circuit. A revolution counter (9) is provided to detect the number of revolutions made by the compressor in unit time by sensing the output of the position sensor. A chopping signal generator (10) is provided in the circuit for varying the revolving speed of the DC motor. A synthesizer (13) is provided to combine the commutation pulse and the chopping signal. A drive device (14) is provided to carry out the ON/OFF of the semiconductor switch of the inverter circuit by the output of the synthesizer.

- An OAT sensor (21) is provided to detect the outdoor air temperature. A second timer (22) is provided to carry out the output of a further constant time stop signal to the driver stage of the fan after completion of the constant time stoppage based on the signal from the first timer when the outdoor air temperature is detected to be higher than a predetermined limit by the OAT sensor. A fan stoppage switch (25) outputs a fan stop signal to the fan driver stage when an inverter temperature sensor detects that the temperature of the inverter is more than to exceed a predetermined limit.

- ADVANTAGE - Controls compressor current to restrain peak magnitude of inverter circuit temperature. Reduces size of heat sink in inverter circuit. Achieves quick cooling in chamber. Saves electric power by shortening time required to lower frequency of chopping signal.

- (Dwg.1/10)

IW - CONTROL SYSTEM REFRIGERATE SECOND TIME OUTPUT CONSTANT TIME FAN STOPPAGE SIGNAL ABOVE FIRST TIME OUTDOOR AIR TEMPERATURE PREDETERMINED LIMIT

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NC - 001

OPD - 1995-07-07

ORD - 1997-01-28

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TI - Control system of refrigerator - has second timer to output constant time fan stoppage signal over and above first timer when outdoor air temperature exceeds predetermined limit